**Comments on** *Baseline Biological Characterization of the Terrestrial and Aquatic Habitats at Rocky Flats Plant Final Report September 1992*

We would expect an adequate baseline characterization of the habitats of the drainages to include data on relevant chemistry velocity and flow and toxicity integrated with biological survey data Sufficient information should be included to complement the observed diversity that relates to all principal factors of the aquatic system for a proper baseline characterization of the habitat

The following specific comments concern actual presentation and interpretation of the biological survey data

* Define the term 'richness" in the glossary

* On page 22 section 3 3 3 Data Analysis states 'Ecological analyses for plankton and periphyton taxa provided information on taxon presence richness and relative abundance Taxa of benthic macroinvertebrates in stream and pond habitats were analyzed for presence richness and relative abundance Analysis of fish data included determination of species presence species richness and species relative abundance " Include counts of the species of macrobenthos and fish for the stations surveyed

* The Johnson 1974 et al reference is not listed in the Reference Section

* The definition of phytoplankton and periphyton included in the document are not accurate

* Clearly distinguish periphyton and phytoplankton sampling segregating pond and stream aquatic habitats

* In addition EPA s Rapid Bioassessment Protocol should be considered for interpretation of the data to describe the physical habitat and for comparisons of the stations sampled

**Comments on** *Draft Final Phase III RFI/RI Rocky flats Plant 881 Hillside Area (Operable Unit 1) Volume XIII Appendix E Environmental Evaluation USDOE October 1992 and*

The data cited in the Report were not the result of a sampling and analysis plan (SAP) derived from the application of a Data Quality Objectives (DQO) Process ' The DQO process ensures that project objectives are defined identifies the environmental data necessary to meet these objectives and ensures that the data collected are sufficient and of adequate quality for the intended use "[1] "The DQO Process is an iterative process designed to focus on the decisions that must be made and to help ensure that site activities that acquire data are logical and cost effective "[2] "The DQO process is integrated with development of the SAP and may be revised as needed based on the results of each data collection activity '[3] The DQO process can be described in a multi-stage process identify questions decisions data uses and needs data tasks (collection) and analysis and interpretations

The data supplied in the OU1 report is of little use for an exposure assessment Without the exposure assessment the risk assessment is not valid The data gaps and dearth of acceptable presentation in the phase III OU1 report are too significant for reaching any substantive conclusions or supporting an informed decision Examples are

> Toxicity data presented in Woman Creek lacks any relevant chemistry or flow to make any conclusions about the origin or extent of toxicity to the *Ceridaphnia Dubia*
>
> Surficial soil data is not linked to any transport model to examine either infiltration runoff or re-suspension potential
>
> Subsurface flow pathways and boundary conditions are not adequately quantified At a minimum a working hydrologic model is needed for each channel on the Hillside to confirm the extent and isolation of each appropriate IHSS with the underlying surface and sub-surface water conditions quantified The working model for each channel with IHSS characteristics can be used to suggest engineered solutions and direct alternative selection

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[1] USDOE Draft Final Technical Memorandum Addendum to Final Phase II RFI/RI Workplan Surface Soil Sampling and Analysis Plan Rocky Flats Plant 903 Pad Mound and East Trenches Operable Unit No 2 (January 1993) p 1-2

[2] Ibid

[3] Ibid

The affect of wet periods seasonal and annual precipitation patterns are not developed Precipitation/runoff correlations precipitation/infiltration and seepage correlations to surface flow and loadings subsurface flow and surface/subsurface flow interface(s) correlations respectively were not described or documented in any fashion

These relationships at least in rudimentary sense are fundamental concepts to understand water resource ecology and exposure assessment necessary to manage and direct remedial activities

The objective to obtain data for establishing exposure scenarios to support the ecological and human health risk assessment was not part of any sampling and analysis plan established for this operable unit and phase III report

Revisions to sampling plans for OU#5 OU#2 and possibly OU#3 have the potential to meet the data needs for an acceptable DQO process to document the fate and transport of either contaminants in the area or characteristics of a healthy system

The proper exposure assessment is needed not only if remedial action is considered for one or more isolated IHSSs or for an even broader area but for proper management of the resources The determination of the range of characteristics resulting in the healthy conditions within OU1 such as seasonal concentrations flow and loadings and habitat are necessary The mechanism(s) responsible for transport and the pathways have to be derived from actual observations indicative of the conditions existing for the area and the system(s) involved Controls can then be considered to insure the system is not adversely affected The design of and success of remedial alternatives become an extension of the attempts to emulate or control the system elements responsible for transport of environmental media throughout the affected area (Quantification of the exposure scenarios) Therefore the correlations of precipitation to runoff infiltration head and alluvial flow seeps stream flow chemical loadings and toxicity spatially and temporally throughout the affected area is needed These are all elements of problem definition or showing problems do not exist The results of the analysis are then used to manage the system and engineer solutions to identified problems

References

U S Department of Energy (DOE) 1993 *Draft Final Technical Memorandum Addendum to Final Phase II RFI/RI Workplan Surface Soil Sampling and Analysis Plan 903 Pad Mound East Trenches (Operable Unit NO 2)* Rocky Flats Plant Golden Colorado

U S Environmental Protection Agency (EPA) 1991 *Draft, Planning For Data Collection A Guide To The Data Quality Objectives Process For Environmental Decision Making* Quality Assurance Management Staff EPA Washington D C

Willingham T and Medine A 1992 *Water Resource Management Strategies for Restoring and Maintaining Aquatic Life Uses* Second International Joint EPA-Peoples Republic of China Symposium on Fish Toxicology Physiology and Water Quality Management